

WHAT IS CLAIMED IS:

1. A display apparatus comprising:

a pixel array including a plurality of pixels, each pixel including:

a light emitting unit,

a drive element for controlling supply of a current to said light emitting unit, and

a switching element for controlling said drive element according to an image signal;

a data signal drive circuit for receiving image data for each frame period and outputting said image signal to said pixel array based on said image data, said each frame period being provided for displaying one screen of said image data;

a scanning signal drive circuit for outputting a scanning signal to said pixel array, said scanning signal being for controlling a timing at which said switching element receives said image signal; and

a current source for, through said drive element, outputting said current supplied to said light emitting unit;

wherein said current source modulates the value or the amount of said current within said each frame period, said current being output from said current source.

2. The display apparatus as claimed in claim 1, wherein:

said pixel array includes a pixel for red, a pixel for green, and a pixel for blue; and

said current source is provided for each of said pixel for red, said pixel for green, and said pixel for blue, separately.

3. The display apparatus as claimed in claim 1, wherein said current source controls said value or said amount of said current according to a control signal input to said current source.

4. The display apparatus as claimed in claim 3, further comprising:

a PWM control circuit for generating a PWM control signal for, through said drive element, controlling whether or not said light emitting unit emits light, during said each frame period; and

a control circuit for, based on said PWM control signal, generating said control signal input to said current source.

5. The display apparatus as claimed in claim 3, further comprising:

a control circuit for detecting said value or said amount of said current and, based on said value or said amount of said current, generating said control signal

input to said current source.

6. The display apparatus as claimed in claim 5, wherein said control circuit calculates a luminance level of said image data for said each frame period based on said value or said amount of said current and, based on said luminance level of said image data for said each frame period, generating said control signal input to said current source.

7. The display apparatus as claimed in claim 5, wherein said control circuit calculates the degree of degradation of said light emitting unit based on said value or said amount of said current and, based on said degree of degradation of said light emitting unit, generating said control signal input to said current source.

8. The display apparatus as claimed in claim 5, wherein said control circuit calculates temperature of said pixel array based on said value or said amount of said current and, based on said temperature of said pixel array, generating said control signal input to said current source.

9. The display apparatus as claimed in claim 3, further comprising:

another light emitting unit provided separately from said pixel array; and

a control circuit for detecting temperature of said another light emitting unit and, based on said temperature

of said another light emitting unit, generating said control signal input to said current source.

10. A method for displaying an image based on image data by use of a pixel array including a plurality of pixels, each pixel including:

a light emitting unit;

a drive element for controlling supply of a current to said light emitting unit; and

a switching element for controlling said drive element according to an image signal;

wherein said method comprises the steps of:

outputting said current from a current source to said light emitting unit through said drive element;

receiving said image data for each frame period and outputting said image signal from a data signal drive circuit to said pixel array based on said image data, said each frame period being provided for displaying one screen of said image data;

outputting a scanning signal from a scanning signal drive circuit to said pixel array, said scanning signal being for controlling a timing at which said switching element receives said image signal; and

modulating the value or the amount of said current within said each frame period, said current being output from said current source.

11. A display apparatus comprising:

a pixel array including a plurality of display elements arranged in a matrix;

a data signal drive circuit for, based on image data, generating an image signal for causing each display element to exhibit a gray scale level according to said image data;

a scanning signal drive circuit for selecting one or a plurality of lines of display elements to which said image signal is to be output;

a power supply circuit for generating a current for causing said each display element to emit light; and

a control circuit for controlling a relationship between a gray scale and luminance of said each display element such that a gray scale level is set to a lower luminance level when a luminance level of said image data for a predetermined display period is high than when said luminance level of said image data for said predetermined display period is low.

12. The display apparatus as claimed in claim 11, wherein said control circuit controls the value or the amount of current for causing all or some of said plurality of display elements to emit light so as to control said relationship between said gray scale and said luminance.

13. The display apparatus as claimed in claim 11, wherein said control circuit controls a signal voltage of

said image signal so as to control said relationship between said gray scale and said luminance.

14. The display apparatus as claimed in claim 11, wherein the control circuit controls a light emission time period of said each display element so as to control said relationship between said gray scale and said luminance.

15. The display apparatus as claimed in claim 11, wherein said control circuit detects the value or the amount of current for causing said plurality of display elements to emit light and calculates said luminance level of said image data for said predetermined display period based on said detected value or amount of said current.

16. The display apparatus as claimed in claim 11, further comprising:

another display element provided separately from said pixel array;

wherein said display apparatus detects the value or the amount of current in said another display element and calculates said luminance level of said image data for said predetermined display period based on said detected value or amount of said current.

17. The display apparatus as claimed in claim 11, wherein said predetermined display period is a frame period for displaying one screen of image data, or a period shorter than that.

18. A method for causing a display array to exhibit a gray scale level according to image data, said display array including a plurality of display elements, said method comprising the steps of:

outputting a current to said plurality of display elements and selecting one or a plurality of lines of display elements from among said plurality of display elements, said current being for causing said plurality of display elements to emit light;

outputting an image signal to said selected plurality of display elements, said image signal being for causing said display array to exhibit said gray scale level according to said image data; and

controlling a relationship between a gray scale and luminance of each display element such that said gray scale level is set to a lower luminance level when a luminance level for a predetermined display period is high than when said luminance level for said predetermined display period is low.